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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,751	09/18/2003	Ozgur Yildirim	100202987-1	8010

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EXAMINER	
VO, ANH T N	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/666,751	YILDIRIM ET AL.	
	Examiner	Art Unit	
	Anh T.N. Vo	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL-REJECTION

CLAIM REJECTIONS

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior arts are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-15, and 22-39 are rejected under 35 USC 103 (a) as being unpatentable over Field et al. (US Pat. 6,062,681) in view of Kashimura et al. (US Pat. 6,007,193) and further in view of Masaki (US Pat. 6,109,715).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Field et al. disclose in Figures 1A-1E an ink reservoir for use in an ink jet printer comprising:

- a first set of resistors (6) primarily configured to be energized sufficiently to vaporize fluid, individual resistors of the first set positioned in individual ejection chambers (5) of a micro electro mechanical systems device (column 8, lines 13-20);
- a print cartridge (22);
- a first set of electrical components (6, 37 and conductive wires: not shown) primarily configured to be energized sufficiently to vaporize fluid, individual electrical components of the

first set positioned in individual ejection chambers (5) of a micro electro mechanical systems device;
- a second set of electrical components (34, 35, 36, 37) primarily configured to be cooperatively energized sufficiently to heat fluid but not primarily to vaporize the fluid, the second set of electrical components positioned along a fluid feed passageway (16) supplying the ejection chambers;
- wherein the desired direction is generally opposite a direction of fluid flow within the micro electro mechanical systems device, wherein the desired direction is generally toward a structure intended to evacuate bubbles from the micro electro mechanical systems device. (column 4, lines 54-67 and column 8, lines 1-4);
- wherein the first electrical component (6, 37, conductive wires: not shown) comprises one (37) of the plurality of second electrical components (34, 35, 36, 37); and
- wherein the second set of electrical components comprises transistors (not shown).

However, Field et al do not disclose a second set of resistors primarily configured to be cooperatively energized sufficiently to heat fluid but not primarily to eject the fluid that causes bubbles present in the fluid to move to prevent occluding of the ejection chamber, the second set of resistors positioned along a fluid feed passageway supplying the ejection chamber; wherein the second set of resistors is primarily configured to move a bubble; wherein the second set of resistors is configured to be energized in a pattern designed to move a thermal gradient along the fluid feed passageway; and the first set of electrical components comprises piezoelectric crystals.

Nevertheless, Kashimura et al. disclose an ink jet printer comprising :

- a second set (3, 42) of resistors primarily configured to be cooperatively energized sufficiently to heat fluid but not primarily to eject the fluid that causes bubbles present in the fluid to move to prevent occluding of the ejection chamber (7), the second set of resistors positioned along a fluid feed passageway (2, 6) supplying the ejection chamber (7);

- wherein the second set (2, 6) of resistors is primarily configured to move a bubble (column 5, lines 39-52); and
- wherein the second set (3, 42) of resistors is configured to be energized in a pattern designed to move a thermal gradient along the fluid feed passageway (2, 6).

Furthemore, Masaki discloses in Figure 3 a printing head comprising the first set of electrical components comprises piezoelectric crystals (315).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Kashimura et al. and Masaki in the Field et al. ink jet print head for the purpose of taking air bubbles away from ink supply path to prevent air bubbles staying in a printhead chamber and effecting a discharge of ink through nozzles of the ink jet printing head.

Claims 16-21 are rejected under 35 USC 103 (a) as being unpatentable over Field et al. (US Pat. 6,062,681) in view of Kashimura et al. (US Pat. 6,007,193) and further in view of Sullivan (US Pat. 6,264,309).

Note: The method steps are inherently taught in the apparatus device/limitations in the rejections as follow:

Field et al in view of Kashimura et al. disclose the basic features of the claimed invention were stated above but do not disclose a filter that is configured to filter fluid contained in the fluid-feed channel before the fluid enters the ejection chambers; wherein the fluid-feed channel is defined, at least in part, by a substrate, and the ejection chambers are positioned over the substrate and wherein the filter comprises a generally planar filter positioned between the substrate and the ejection chambers;
wherein the filter has apertures formed therein through which the fluid flows and wherein the apertures are dimensionally smaller when measured transverse a fluid flow path than individual nozzles formed over respective ejection chambers; and wherein the filter has apertures of a first

size and a second larger size formed therein through which the fluid flows and wherein the apertures of the first size are dimensionally smaller when measured transverse a fluid flow path than individual nozzles formed over respective ejection chambers.

Sullivan discloses in Figures 2-3 an ink jet heater chip comprising:

- a filter (60) configured to filter fluid contained in the fluid-feed channel (152c) before the fluid enters the ejection chambers (55);
-wherein the fluid-feed channel (152c) is defined, at least in part, by a substrate (152), and the ejection chambers (55) are positioned over the substrate (152) and wherein the filter (60) comprises a generally planar filter positioned between the substrate (152) and the ejection chambers (55);
- wherein the filter (60) has apertures formed therein through which the fluid flows and wherein the apertures are dimensionally smaller when measured transverse a fluid flow path than individual nozzles (56) formed over respective ejection chambers (55) (Figure 3); and
- wherein the filter has apertures of a first size (158) and a second larger size (157) formed therein through which the fluid flows and wherein the apertures of the first size are dimensionally smaller when measured transverse a fluid flow path than individual nozzles (56) formed over respective ejection chambers (55).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Sullivan in the Field et al. ink jet printhead for the purpose of filtering air bubbles and contaminants from ink before ink passes into the ink supply channel.

Response to Applicant's Arguments

The applicant's arguments with respect to the prior art rejection have been carefully considered and have been traversed in view of the new grounds of rejection over Kashimura et al (6,007,193) reference.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262 The examiner can normally be reached on Tuesday to Friday from 9:00 A.M.to 7:00 P.M..

ANH T.N. VO
PRIMARY EXAMINER
September 25, 2005